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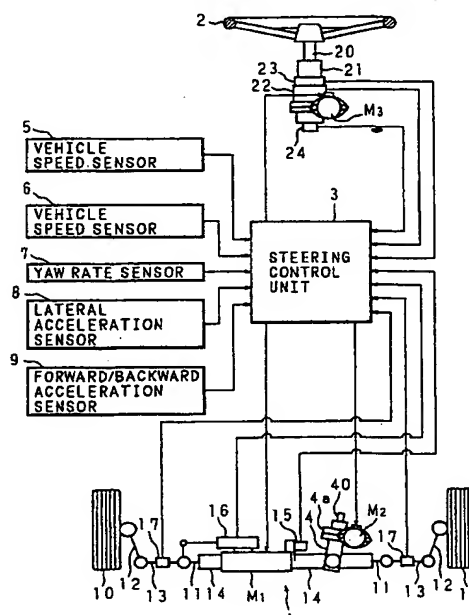
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(54) Steering apparatus for automobile

(57) A steering apparatus for automobiles having steering operating means which is not mechanically connected to a steering mechanism, a pair of steering motors provided to different positions in the steering mechanism, and a steering control unit for distributing a necessary steering force which is obtained on the basis of a deviation between an operating position of the steering operating means and an actual operating position of the steering mechanism in a prescribed ratio so as to determine target values of the outputs of the steering motors.

FIG. 1



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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 4 741 409 A (WESTERKAMP ET AL.) 3 May 1988 (1988-05-03)	1	B62D5/04
A	* column 2, line 29 - line 51 * * abstract; figures *	2	
X	US 5 327 986 A (SAITA) 12 July 1994 (1994-07-12) * the whole document *	1	
A	EP 0 522 555 A (TOYOTA) 13 January 1993 (1993-01-13) * column 5, line 31 - line 40; figures *	1,2	
A	EP 0 531 962 A (AISIN SEIKI) 17 March 1993 (1993-03-17)		
A	GB 2 259 892 A (HONDA) 31 March 1993 (1993-03-31)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B62D
Place of search BERLIN		Date of completion of the search 29 October 1999	Examiner Krieger, P
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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ON EUROPEAN PATENT APPLICATION NO.**

EP 98 10 1684

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The members are as contained in the European Patent Office EDP file on
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29-10-1999

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 4741409	A	03-05-1988	NONE		
US 5327986	A	12-07-1994	NONE		
EP 522555	A	13-01-1993	JP	5016821 A	26-01-1993
			DE	69214209 D	07-11-1996
			DE	69214209 T	06-03-1997
			US	5289891 A	01-03-1994
EP 531962	A	17-03-1993	JP	5069834 A	23-03-1993
			US	5249638 A	05-10-1993
GB 2259892	A	31-03-1993	JP	5105100 A	27-04-1993
			DE	4232256 A	08-04-1993
			US	5828972 A	27-10-1998

EPO FORM P0459

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